

Lonchoptera in Hawaii (Diptera)

BY E. H. BRYAN, JR.

(Presented at the meeting of September 5, 1935)

The genus *Lonchoptera*, family *Lonchopteridae* (Diptera), contains a few species of rather small, slender, brownish or yellowish flies. These have moderately long legs and long pointed wings which have a peculiar, characteristic venation, said to differ between the sexes, the female having the sixth vein meeting the fifth to form a large closed cell near the hind margin of the wing, while the sixth vein of the male is described as running to the hind margin. Only the female is known in Hawaii.

Specimens of *Lonchoptera* have been reported as collected in Hawaii as follows:

Hawaii, 29 miles Olaa, August 1922, one specimen, by the late W. M. Giffard.¹

Molokai, Kamiloloa Gulch, in Bermuda grass on the bank of the stream, December 1925, 15 specimens by O. H. Swezey and E. H. Bryan, Jr.²

Hawaii, Nauhi Gulch, 5,000-6,000 feet elevation, October, 1931, 14 specimens by O. H. Swezey and F. X. Williams.³

All these specimens have been referred to *Lonchoptera furcata* (Fallen), with a query,⁴ on the basis of keys and descriptions given by Lundbeck.⁵ In sorting out other collections of Diptera in B. P. Bishop Museum, specimens from the following localities have been identified as this same species, although there is great variation in color:

Kauai, Kaholuamanu, 3,600 feet, Aug. 9, 1928, A. M. Adamson and E. H. Bryan, Jr. (one each).

Kauai, Alakai Swamp, Aug. 10, 1928, one by A. M. Adamson.

Maui, Haleakala Crater, 7,000 feet, March 22, 1932, series by Owen Bryant.

¹ Proc. Hawaiian Ent. Soc. V: 347, 1924.

² Proc. Hawaiian Ent. Soc. VI: 415, 1927.

³ Proc. Hawaiian Ent. Soc. VIII: 188, 1932.

⁴ Proc. Hawaiian Ent. Soc. VIII: 410, 449, 1934.

⁵ Wm. Lundbeck, *Diptera Danica*, pt. 5, pp. 1-18, 1916.

Proc. Haw. Ent. Soc., IX, No. 2, April, 1936.

Maui, Kula Pipe Line trail, 4,500-5,000 feet, March 15 and 19, series by Owen Bryant.

During the recent Hawaiian Academy of Science's Mauna Kea expedition, Robert L. Usinger collected seven specimens of Lonchoptera on moist surfaces along the edge of Lake Waiau, 13,007 feet elevation, Mauna Kea, Hawaii, August 11, 1935. Running these down in Curran's key,⁶ the specimens readily went to *L. dubia* Curran, as did also the previously collected specimens. But running them down in keys given by Lundbeck⁵ and by de Meijere⁷ they went as readily to *L. furcata*.

It then became the problem to determine how Curran's *dubia* and Fallen's *furcata* might be distinguished. In his original description of *L. dubia*, Curran⁸ states that "*L. dubia* cannot be *furcata* because that species is described as having the bristles of the back of the head wholly yellow, whereas in *dubia* some of the occipital cilia are black and it is only rarely that the dark bristles are reduced to one or two in number. In addition, the fact that males are entirely unknown in *dubia* is strong grounds for believing that our species cannot possibly be the same as the European."

But Lundbeck (5, p. 14) in a detailed description of *L. furcata* says, "postocular bristles yellow, often some of the upper black"; and de Meijere (7, p. 73) states, "Die Scheitelborsten sind alle gelb, von den Cilien am Augenrande sind fast immer einige der oberen in gewisser Richtung schwarz."

I have tabulated the characters given for *L. furcata* and *L. dubia* and compared the results with the specimens found in Hawaii. I can find nothing which will serve to distinguish the two species and include all the variations found among our specimens. All authorities agree that they are dealing with an exceedingly variable species. Color is apparently of no diagnostic value, as specimens collected at the same time and place vary from almost black to light brown with various dark markings. The mesonotum may be brown with one or three longitudinal stripes of various lengths and widths, or it may be entirely dark and more or less gray pollinose.

⁶ C. H. Curran, The families and genera of North American Diptera, pp. 232-233, 1934.

⁷ J. C. H. de Meijere, Die Lonchopteren des palaearktischen Gebietes. Tijdschrift voor Entomologie, vol. 49, pp. 44-98, 1906.

⁸ C. H. Curran, The North American Lonchopteridae (Diptera), American Museum Novitates No. 696, March 3, 1934.

Regarding Curran's argument that the absence of males is significant, no males have been found in Hawaii, although the females seem to be locally abundant. Also, males of *L. furcata* were unknown to Lundbeck in 1916, and de Meijere (7, p. 75) notes that males are "ausserordentlich selten." He believed (p. 49) that this species propagates mainly by parthenogenesis, and he supports this opinion by noting that the spermatheca is short and devoid of spermatozoa. Only about six males of *L. furcata* were known in 1916.

It is the writer's belief that *Lonchoptera furcata* (Fallen) is an exceedingly variable species of wide distribution, and that it includes specimens from Europe, various parts of the United States and Canada, South America, and Hawaii. This species already has a long list of synonyms in Europe, because of its great variation, and unless there are some more distinctive characters for Curran's *L. dubia* than have been pointed out, that name also must be added to the list.

In the Hawaiian Islands this species has now been collected on Kauai, Molokai, Maui, and Hawaii; even making itself apparently at home near the summit of the highest peak between California and New Guinea. It is such a distinctive species that had it been present in any numbers it could scarcely have been overlooked by Dr. R. C. L. Perkins in Hawaii, 1892-1912. It is therefore thought to have immigrated after the beginning of the 20th century, and to have spread throughout the main islands of the group with considerable rapidity, in order to have become so widely distributed in our high native forests.

Insects of Samoa—Concluded

REVIEW BY E. H. BRYAN, JR.

(Presented at the meeting of September 5, 1935)

A masterly "Summary" by Dr. P. A. Buxton brings to a close the valuable series of publications on "Insects of Samoa and other Samoan terrestrial Arthropoda," which has been printed by the British Museum (Natural History), London, April, 1927, to